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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,245	06/27/2003	Edward Milton McWhorter		4989

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EXAMINER

ECHELMEYER, ALIX ELIZABETH

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 03/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/607,245

Applicant(s)

MCWHORTER, EDWARD MILTON

Examiner

Alix E. Echelmeyer

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings filed on June 27, 2003 are accepted by the examiner.

Specification

2. The disclosure is objected to because of the following informalities: while the claims have been amended to start on a new page, page 5 of the specification still contains the first three claims, which should be deleted.

Appropriate correction is required.

Claim Interpretation

3. Claim 1 of the instant application is drawn to a consumable electrode but contains steps for making said electrode. Since the invention is the final product of the consumable electrode, the method of making the electrode as described in claim 1 is not given patentable weight.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cheiky (US Patent 4,916,036) in view of Scher et al. (US Pre-Grant Publication 2004/0118448) and Watanabe et al. (US Patent 5,354,628)

Cheiky teaches a consumable electrode comprising a reactive metal from Group I-VII of the Periodic Table on a nonreactive substrate (abstract; Figures 2, 3, and 10; column 4 lines 46-53). As seen in Figure 2, the reactive metal is found in a layer between the nonreactive substrate and another protective layer. Cheiky fails to teach the protective layers as aluminized polymer.

Scher et al., which claims priority to Provisional Application No. 60/452,038 filed March 4, 2003, teach the use of an aluminized polymer film in order to prevent oxygen exposure of the reactant.

Modifying the consumable electrode of Cheiky with the aluminized polymer of Scher et al. would protect the reactant from oxidation before it reached the electrolyte.

Therefore, it would have been obvious to one having ordinary skill in the art the time the invention was made to protect from oxidation the reactant of Cheiky with the aluminized polymer of Scher et al.

Cheiky in view of Scher et al. fail to teach a hermetic seal to contain the alkali metal reactant within the aluminized polymer.

Watanabe et al. teach a hermetic seal to contain a negative sodium electrode to prevent it from coming into contact with substances that might react with it.

Hermetically sealing the aluminized polymer of Cheiky in view of Scher et al. would further protect the sodium electrode from undesired reactants.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to hermetically seal the aluminized polymer of Scher et al. around the electrode of Cheiky et al. in order to prevent unwanted reactions as taught by Watanabe et al.

6. Claim 2 is rejected over Cheiky, Scher et al., and Watanabe et al. in view of Siskin et al. (US Patent 6,303,019 B1).

The teachings of Cheiky, Scher et al., and Watanabe et al. as discussed above are incorporated herein.

Cheiky, Scher et al., and Watanabe et al. teach the consumable electrode of claim 1. They fail to teach the coating of the sodium foil with a depolarizing agent.

Siskin et al. teach that additives such as depolarizing agents can enhance the performance of electrodes (column 3 lines 52-56).

Using the depolarizing agent of Siskin et al. on the consumable electrode of Cheiky, Scher et al., and Watanabe et al. is desirable because it would enhance the

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performance of the electrode, which could lead to a more efficient fuel cell that consumed less electrode, produced more power, and/or was less costly.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a depolarizing agent on the electrode as taught by Siskin et al. in order to enhance the performance of the consumable electrode of Cheiky, Scher et al., and Watanabe et al.

7. Claims 3 and 4 are rejected over Cheiky, Scher et al., and Watanabe et al.

The teachings of Cheiky, Scher et al., and Watanabe et al. as discussed above are incorporated herein.

Regarding claim 3, Cheiky teaches the removal of some of the consumable electrode to improve the performance of the cell by reducing the hydrogen overpotential (column 3 lines 56-59).

Regarding claim 4, Cheiky teaches a connector for the reliable connection of the consumable electrode tape to the spool that drives its path through the electrolyte bath (column 5 lines 38-41). Cheiky gives examples of how this connection can be made, such as hooks, threaded members, and metal Velcro. The bead-chain of the instant application is similar to a hook connection attachment as disclosed in Cheiky.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Skotheim (US Patent 5,462,566).


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix E. Echelmeyer whose telephone number is 571-272-1101. The examiner can normally be reached on Mon-Fri 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

aee


PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER

Alix E Echelmeyer
Examiner
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